Soviet Physics Journal 1989 vol.32 N6, pages 461-464

Relativistic collisionless gas in an isotropic universe within the framework of the Einstein-Cartan theory

Galiakhmetov A.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Exact solutions of the self-consistent system-of Einstein-Cartan-Vlasov equations in nonrelativistic and ultrarelativistic limits are obtained for a spinless collisionless gas. The investigation is performed for different irreducible parts of the torsion tensor and different values of the cosmological constant. It is shown that torsion creates a curvature type effect. The solution is singular for t = 0. It is shown that the asymptotic of the scale factor a(η) in the ultrarelativistic limit for the torsion expressed in terms of its trace can differ from the Friedman one. © 1989 Plenum Publishing Corporation.

http://dx.doi.org/10.1007/BF00898632